

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Connect America Fund	)	WC Docket No. 10-90
	)	
High-Cost Universal Service Support	)	WC Docket No. 05-337

**APPLICATION FOR REVIEW**

**OF**

**NATIONAL EXCHANGE CARRIER ASSOCIATION, Inc.  
NATIONAL TELECOMMUNICATIONS COOPERATIVE ASSOCIATION  
ORGANIZATION FOR THE PROMOTION AND ADVANCEMENT OF SMALL  
TELECOMMUNICATIONS COMPANIES,  
and  
WESTERN TELECOMMUNICATIONS ALLIANCE**

May 25, 2012

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## SUMMARY

The Commission should immediately set aside the Wireline Competition Bureau's April 25, 2012 *Order* implementing the *USF/ICC Transformation Order's* regression analysis-based limits on RLECs' high cost loop support (HCLS). As shown herein, the formulas and resulting caps developed by the Bureau impose support limitations in an arbitrary, nearly random manner. Study areas affected by the caps have per-customer costs that are indistinguishable from those not affected by the formulas. In at least some cases, the formulas appears to limit support to companies not because they are inefficient, but simply because they serve larger numbers of customers, hardly a *prima facie* indicator of "inefficient" or "imprudent" expenditures.

The formulas are also based on data riddled with material errors, as the Bureau itself admits. It is arbitrary and capricious for the Commission to impose support reductions on companies based on study area boundary data that are known to be wrong. The Bureau's apparent solution – adding a "streamlined" waiver process that puts the burden on small carriers to correct the Commission's data – cannot as a matter of law save these invalid and unlawful formulas. Moreover, partial corrections made to the formulas as a result of such waivers will likely decrease their overall accuracy and will make support under the caps more unpredictable, as the regression models remain startlingly sensitive to even minor changes in data.

The technical flaws in the formulas do not end with study area boundary errors. These additional flaws include, *inter alia*, the adoption and inclusion of new variables without necessary data quality controls and use of coefficients that have intuitively incorrect and inconsistent signs. Careful review also reveals that the Bureau's methodology does not rely on statistical analysis of "similarly situated" companies, as the Commission's *USF/ICC*

*Transformation Order* directed. In fact, the actual formulas do not establish *any* comparator groups.

The effects of these flaws are significant. Reductions in support imposed under the Bureau's *Order* will be severe for many RLECs. These impacts are only partially ameliorated by the 18-month phase-in period provided under the Bureau's *Order*. Even worse, the formulas fail to give RLECs any plainly stated "business rules" by which to operate going forward – the impenetrable and constantly shifting caps provide no clear signals as to what the Commission or the Bureau may view as "efficient" or "prudent" expenditures going forward, utterly undermining claims that the formulas will encourage broadband efficiency or increase broadband deployment. The fact that the caps will change each year by virtue of action or inaction *beyond any individual carrier's control* contradicts claims that support will be more predictable than under the existing HCLS mechanism. Finally, the Bureau exceeded its delegated authority by addressing matters currently pending before the Commission.

For the reasons discussed herein, the Commission should suspend implementation of its regression-based support limitation formulas at this time, and instead consider alternative constraints that are more transparent and effective. In particular, the Commission should consider the capital investment constraint submitted by the Rural Associations over one year ago in this proceeding. This prior proposal would, if adopted, provide clearly-defined and locally-tailored "budgets" that would enable carriers with plant most in need of upgrading with the ability and incentive to do so, while reasonably constraining replacements of more recently- installed equipment. This approach would also avoid the arbitrary and harmful effects imposed under the regression models adopted in the *Order*.

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Pursuant to section 1.115 of the Commission's Rules, 47 C.F.R. § 1.115, the associations listed above (the Rural Associations), representing rural rate-of-return regulated incumbent local exchange carriers (RLECs), respectfully request the Commission review the *Order* issued April 25, 2012 by the Chief, Wireline Competition Bureau in the above-captioned proceeding.<sup>1</sup> As shown herein, the Bureau's *Order* must be set aside because the actions taken on delegated authority are in conflict with the Telecommunications Act of 1996, involve application of a Commission order which should be overturned or revised, and rest on erroneous findings as to important and material questions of fact.

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<sup>1</sup> *Connect America Fund*, WC Docket No. 10-90, High-Cost Universal Service Support, WC Docket No. 05-337, Order, DA 12-646 (rel. Apr. 25, 2012) (*Order*).

## I. INTRODUCTION

The Commission's *USF/ICC Transformation Order*<sup>2</sup> adopted a "framework" for a system of benchmarks or caps intended "to moderate the expenses of rate-of-return carriers with very high costs compared to their similarly situated peers, while further encouraging other rate-of-return carriers to advance broadband deployment."<sup>3</sup>

The *USF/ICC Transformation Order* originally proposed to apply quantile regression formulas to data for 11 of the 26 steps in NECA's cost company loop cost algorithm.<sup>4</sup> In response to concerns voiced by commenters<sup>5</sup> and members of the Commission's own staff via a "Peer Review" process,<sup>6</sup> the Bureau reduced the overall number of regressions from 11 to 2, and modified the Commission's initial methodology to include additional independent variables.<sup>7</sup>

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<sup>2</sup> *Connect America Fund*, WC Docket No. 10-90, *A National Broadband Plan for Our Future*, GN Docket No. 09-51, *Establishing Just and Reasonable Rates for Local Exchange Carriers*, WC Docket No. 07-135, *High-Cost Universal Service Support*, WC Docket No. 05-337, *Developing an Unified Intercarrier Compensation Regime*, CC Docket No. 01-92, *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, *Lifeline and Link-Up*, WC Docket No. 03-109, *Universal Service – Mobility Fund*, WT Docket No. 10-208, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd. 17663 (2011) (*USF/ICC Transformation Order*).

<sup>3</sup> *Id.* ¶¶ 210-226.

<sup>4</sup> *Order* ¶ 9. See also *USF/ICC Transformation Order* ¶ 1080; Appendix H.

<sup>5</sup> E.g., Initial Comments of NECA, NTCA, OPASTCO, and WTA, WC Docket No. 10-90, *et al.*, at 63 (filed Jan. 18, 2012) (*Rural Associations Comments*); Rural Telephone Service Comments, WC Docket No. 10-90, *et al.*, at 5-10 (filed Jan. 18, 2012), Central Texas Telephone Cooperative, WC Docket No. 10-90, *et al.* (filed Jan. 18, 2012).

<sup>6</sup> See Letter from Patrick Halley, Wireline Competition Bureau, FCC, to Marlene Dortch, FCC, WC Docket No. 10-90, *et al.* (filed Mar. 9, 2012) (*Peer Review Letter*). The Rural Associations provided detailed informal comment on the *Peer Review Letter*. See Letter from Michael R. Romano, NTCA, to Marlene H. Dortch, FCC, WC Docket No. 10-90, *et al.* (filed Mar. 19, 2012) (attaching letter from NECA, NTCA, OPASTCO, and WTA, to Sharon Gillett, Chief, WCB) (*Rural Associations Letter*).

<sup>7</sup> *Order* ¶ 11. The Bureau's *Order* also responded to concerns regarding the manner in which the formulas account for accumulated depreciation, and took steps to ensure the revised formulas would not impose a double limitation on corporate operations expenses. *Id.* ¶¶ 17-19.

Although the Commission's proposed formulas were widely criticized for relying on erroneous study area data,<sup>8</sup> the Bureau declined to correct such errors prior to implementing the revised formulas.<sup>9</sup> Instead, the *Order* established a "streamlined" waiver process to permit carriers adversely affected by the caps to correct any errors in their study area boundaries.<sup>10</sup> The Bureau also announced it would institute a process to correct boundary data errors in time for planned recalculation of the regression limits in 2014.<sup>11</sup>

Finally, the *Order* adopted an 18-month phase-in of support limitations, such that support during the period from July 1, 2012 to December 31, 2012 will be reduced by 25 percent of the difference between the support that would have been available absent application of the benchmarks and the support available at the capped cost levels, subject to a maximum reduction of 10 percent of the study area's high cost loop support (HCLS). During 2013, support will be reduced by 50 percent of the difference, and reduced in full by the caps in effect for 2014.<sup>12</sup>

While the Bureau's formulas appear to be an improvement over the formulas as originally proposed, the *Order* must nevertheless be set aside. As shown herein, the *Order* (a) imposes support limitations in an arbitrary, random manner; (b) is based on data riddled with material errors; (c) reflects numerous technical flaws; (d) imposes severe and unpredictable reductions in support payments on RLECs in violation of section 254 of the Communications

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<sup>8</sup> See, e.g., Reply Comments of the Nebraska Rural Independent Companies, WC Docket No. 10-90, *et al.*, at 13 (filed Feb. 17, 2012); Reply Comments of NECA, NTCA, OPASTCO, and WTA, WC Docket No. 10-90, *et al.*, App. B (filed Feb. 17, 2012) (*Rural Associations Reply Comments*); Letter from Brian W. Higgins, Wilkinson Barker Knauer, LLP (on behalf of Pine Telephone Systems), to Marlene H. Dortch, FCC, WC Docket No. 10-90, *et al.* (filed Mar. 29, 2012).

<sup>9</sup> *Order* ¶ 26.

<sup>10</sup> *Id.* ¶ 27.

<sup>11</sup> *Id.*

<sup>12</sup> *Id.* ¶ 43.

Act of 1934, as amended (the Act); and (e) addresses matters beyond the scope of the Bureau's authority. The Commission should therefore refrain from implementing any support limitation formulas at this time, and instead consider alternative proposals.

## **II. ALTHOUGH AN APPARENT IMPROVEMENT OVER PRIOR ITERATIONS, THE REVISED FORMULAS CONTINUE TO SUFFER FROM SIGNIFICANT TECHNICAL SHORTCOMINGS.**

### **A. The Revised Formulas Apply Support Limits Randomly.**

In adopting its framework for quantile regression formulas, the Commission appears to have assumed, without any factual basis or consideration of “sufficiency” as required by statute, that companies with capital or operational expenses in the 90<sup>th</sup> percentile had engaged in unnecessary investments and/or wasteful spending and should therefore be subject to reductions in support.<sup>13</sup> Putting aside whether there is any logical, statistical, or evidentiary basis to reduce support automatically for companies with higher costs relative to ostensible “peers,” the current formulas do not even successfully accomplish this task.

The Rural Associations previously demonstrated that under the Commission's initial formulas, study areas exceeding the caps had unit cost values of the same distribution as those that did not.<sup>14</sup> This sheer randomness persists in the current version of the formulas. Exhibit 1 (attached) confirms that cost per loop values of study areas affected by the caps continue to distribute over nearly the same range of data as those who are not affected. In other words, the formulas impose limitations on companies *without regard to* whether their per-unit costs are

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<sup>13</sup> See, e.g., *Rural Associations Comments* at 66 (“The 90th percentile is an arbitrary figure that has no demonstrable link to a threshold at which costs become unreasonable. Indeed, the 90th percentile threshold appears to have been plucked from thin air. . . . Absent any meaningful, evidence-based, and “data driven” justification as to why costs in excess of the 90th percentile (or any other percentile, for that matter) are unnecessary, the Commission's use of quantile regression analysis in this manner is inherently arbitrary.”). *Id.* at 67. See also *Rural Associations Letter* at 2-4.

<sup>14</sup> *Rural Associations Comments*, App. D, at 13.



excessive or relatively high compared to “peers.” The formula would do as well to pick companies at random for support limitations.

In some cases, it appears the new caps limit support to companies simply because they happen to serve a large number of customers. For example, East Ascension Telephone Company (EATEL) is shown in Appendix B of the *Order* as having the second highest percentage reduction in HCLS of any study area. This company is in the top tier of rural HCLS recipients in loop count, but has a lower cost per loop than 199 other study areas, and has a lower cost per loop than 139 study areas that do not have their support reduced at all by the caps.

Multiplying EATEL’s moderate cost per loop by its number of loops (the 13<sup>th</sup> highest count) yields the highest aggregate loop cost of all recipients, but of course this information says nothing about whether EATEL’s costs are reasonable on a per-customer served basis. In fact, this study area’s cost per line is not even in the top 25 percent among RLECs. Yet, once the caps take effect, this company will experience the second greatest reduction in total support, from \$16.1M to \$3.7M, or 77 percent – twice the reduction of the next most affected company.<sup>15</sup>

Formulas that operate in such an arbitrary and imprecise fashion are neither rational nor useful in accomplishing the Commission’s goals of encouraging carriers to “moderate spending” or “increase broadband deployment.” Without a demonstration that the regression formulas are *effective* in identifying unnecessary investments or wasteful spending, and with the evidence showing they are *not effective* even in identifying companies with relatively high per-customer costs, the formulas’ use in automatically limiting support is inherently arbitrary and capricious, and calls into question whether the caps enable – or frustrate – sufficient and predictable support.

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<sup>15</sup> EATEL has separately demonstrated the disproportionate impacts the revised formulas will have on its operations. See Letter from Arthur G. Scanlan, II, CEO and Chairman, East Ascension Telephone, to Sharon Gillett, Chief, WCB, WC Docket No. 10-90, *et al.* (filed May 1, 2012) (*EATEL Letter*).

The Commission must set aside the Bureau's *Order* and suspend implementation of the regression formulas and resulting caps until these fundamental flaws are addressed.

**B. The Error Correction Process Imposes Unreasonable Burdens on RLECs and Will Reduce, Not Improve, the Accuracy and Predictability of Support Payments.**

Comments by the Rural Associations in response to the *USF/ICC Transformation Order* highlighted the extensive scope of data errors within the originally-proposed regression formulas, including inaccuracies in the TeleAtlas wire center data the Commission employed to establish study area boundaries.<sup>16</sup> Inaccurate study area boundaries affect at least 8 of the 18 independent variables in the formulas,<sup>17</sup> and consequently can impact the CapEx and OpEx limits calculated by the model for various RLECs to a degree that cannot be determined until the formulas are rerun with accurate study area boundary data for all companies.

The Bureau recognized that “concerns remain regarding inaccuracies in this [study area boundary] data set,” but rather than correct these errors it adopted a “streamlined, expedited waiver process” to allow carriers to submit new geographic data.<sup>18</sup>

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<sup>16</sup> *Rural Associations Comments* at 65; *See also id.*, App. D, at 3-4. Indeed, of 357 RLEC study areas for which actual boundary data was available, earlier analyses by the Rural Associations showed that the Commission's data was accurate within one percent for only 33 study areas, and off by 20 percent or more for 80 study areas. *Id.* A number of RLECs have since made *ex parte* presentations regarding the extent of such errors in the Commission's mapping data as applied to their individual study areas. *See, e.g.*, Letter from Rod Bowar, Kennebec Telephone Company, to Amy Bender, WCB, WC Docket No. 10-90, *et al.* (filed Mar. 5, 2012); Letter from Jerry Reisenauer, West River Cooperative Telephone, to Amy Bender, WCB, WC Docket No. 10-90, *et al.* (filed Mar. 5, 2012).

<sup>17</sup> The independent variables that can differ due to inaccuracies in study area boundaries include LnRoadMiles, LnRoadCrossings, LnDensity, PctUrban, Difficulty, PctBedrock36, PctTribalLand and PctParkLand.

<sup>18</sup> *Order* ¶¶ 26-27. As noted above, the Bureau also initiated a study area boundary data collection process that to correct remaining inaccuracies prior to rerunning the regression formulas to calculate HCLS limits for 2014. *See supra* at 3.

It is arbitrary and capricious for the Commission to permit these regression formulas to be used when the underlying model contains significant acknowledged errors. Reviewing courts do not owe judicial deference to agency determinations that are based upon data that the agency knows are incorrect.<sup>19</sup> Requiring carriers to submit petitions to correct such errors in the Commission's own data improperly places the "burden of disproof" on carriers.<sup>20</sup> Courts have made abundantly clear the Commission cannot save an invalid rule by "tacking on" a waiver process.<sup>21</sup> This is precisely what the Bureau has attempted to do here.<sup>22</sup>

Even if the Bureau's waiver process were permissible as a matter of law or advisable as a matter of policy, it does not provide a valid means to resolve problems with erroneous data. Inviting affected carriers to submit waiver petitions and data updates will likely result in selective data corrections (*i.e.*, individual carriers are most likely to submit data only in instances where they believe they would benefit). Correcting errors for only some carriers would continue

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<sup>19</sup> *Borlem, S.A.—Empreedimentos Industrialis and FNV v. United States of America*, 913 F.2d 933, 937 (Fed. Cir. 1990) ("The law does not require, nor would it make sense to require, reliance upon [inaccurate] data which might lead to an erroneous result." *See also Motor Vehicle Manufacturers Assn. v. State Farm Mutual Insurance Co.*, 463 U.S. 29, 43 (1983) ("an agency rule would be arbitrary and capricious if the agency . . . offered an explanation for its decision that runs counter to the evidence before the agency").

<sup>20</sup> Such waivers are "streamlined" only in comparison to the extraordinarily onerous requirements imposed on carriers seeking waivers of support reductions imposed by other provisions in the Commission's *USF/ICC Transformation Order*. *See, e.g.*, Petition for Reconsideration and Clarification of NECA, OPASTCO and WTA, WC Docket No. 10-90, *et al.*, at 19-22 (filed Dec. 29, 2011) (*Rural Associations Petition for Reconsideration*).

<sup>21</sup> *ALLTEL Corp. v. FCC*, 838 F.2d 551, 561-62 (D.C. Cir. 1988). ("The FCC cannot save an irrational rule by tacking on a waiver procedure. 'The very essence of waiver is the assumed validity of the general rule...' [I]f the Commission's argument were accepted, no rule, no matter how irrational, could be struck down, provided only that a waiver provision was attached. A rule with no rational basis . . . cannot be saved in this fashion." *Id.*, citing *WAIT Radio v. FCC*, 418 F.2d 1153, 1158 (D.C.Cir.1969.)

<sup>22</sup> Likewise, the 25 percent and 50 percent transition factors adopted by the Bureau to reduce the impact of its benchmarks during 2012 and 2013 cannot make up for the fact that the reductions imposed by the formula are unjustified. Even with a transition, caps based on inaccurate data still reduce HCLS for some RLECs substantially during 2012 and 2013. *See infra* Sec. III, at 14.

to influence the accuracy of the overall quantile formulas, possibly to the detriment of companies whose boundary data is correct. That is, even if an individual company's study area boundaries are correctly encoded in the Commission's data set, that company's costs will be evaluated based on regression coefficients computed using the *inaccurate* data for other study areas nationwide.

Such data corrections, even if applied to data for only a handful of carriers, would also make support under the regression formulas even more unpredictable. The Rural Associations have previously shown the formulas lack the "robustness" necessary to deal with changes in data. Correcting study area boundary data for even a single test study area can result in startling changes in formula coefficients, ranging from -184 percent to +12 percent.<sup>23</sup>

The final quantile regression formulas adopted in the Bureau's *Order* are every bit as sensitive to data corrections as the preliminary formulas. As a way of testing this continued sensitivity, the Rural Associations repeated the data correction test documented in their Reply Comments.<sup>24</sup> Exhibit 2 (attached) compares coefficients of the adopted CapEx formula and coefficients corrected for the data of the test study area. This updated analysis shows that coefficients of *all* variables used in the new formulas – not just the coefficients of variables whose values were corrected – again changed significantly. Thus, data corrections introduced by the Bureau's waiver process will not only introduce additional errors in the formulas for non-

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<sup>23</sup> *Rural Associations Reply Comments*, App. B, at 3-4. Similar concerns were raised by the Commission's Peer Reviewers. *See Peer Review Letter*, Apps. A and C.

<sup>24</sup> Data correction for this test was done by adjusting the Density variable for the same sample study area as in the prior test, in proportion to the correction to the study area's square miles. Since the same erroneous study area data identified in the initial analysis continues to be used in the final formulas, this test permits a true "apples to apples" comparison between the initial formulas and the Bureau's final formulas. And while many other variables contained in the Bureau's revised formulas ideally should have been adjusted as part of this test, this was not possible because the Bureau did not release either the data or methods needed to enable such adjustments. It is important to note, however, that if it had been possible to reflect corrections to the many other variables used by the formulas, these changes would have contributed to even more severe impacts.

submitting companies, but will also cause these inherently unstable formulas to change in unpredictable ways going forward.

Contrary to the *Order's* claims,<sup>25</sup> using the same regression coefficients through 2013 provides no predictability with respect to support payments during this period. At best, this approach simply ensures that the significant data errors underlying the formulas will continue to drive erroneous caps for the next 18 months, an unacceptably long period. Even if the coefficients will not change over the next 18 months, the caps themselves will still shift.<sup>26</sup> The effects of data corrections and changes resulting from annual HCLS data submissions will thus contribute to substantial unpredictability even during this “transition” time. All RLECs will remain at risk as to whether they will be among the next set of companies “shocked” by the next iteration of the Commission’s regression formulas.<sup>27</sup>

In sum, the Bureau’s regression formulas are replete with errors due, *inter alia*, to its use of critical study area boundary data known to be inaccurate. Continued attempts to “patch up” the formulas will only ensure that support limitations will become even more random and unpredictable over time. The Commission should not countenance such model-making on the fly. These limits will have real impacts on some companies starting in just over one month, and those impacts will only compound over time in shock waves across the industry given the patent instability and unpredictability of the underlying model.

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<sup>25</sup> See *Order* ¶ 45.

<sup>26</sup> *Id.* Holding the coefficients constant but allowing the caps themselves to change is of little, if any, aid as a transitional measure to carriers attempting to engage in planning efforts.

<sup>27</sup> For example, in the case of EATEL (discussed above), support levels in the coming year and a half will plunge enormously below where they would be if the Commission’s models were correctly designed. Then, assuming the Commission corrects its models for 2014, EATEL’s benchmarks can be unpredictably and dramatically reset to levels unrelated to its transitional results.

This must not be treated as an exercise, a field test, or an experiment in modeling for modeling's sake – this is a model that will either drive or deter rural broadband investment for years to come, and a “trial and error” approach to model-making is contrary to law and good policy. The Commission should therefore, at a minimum, suspend implementation of the regression formulas and resulting caps until all data errors can be corrected and stable formulas devised.<sup>28</sup>

**C. New Variables Introduce Additional Errors Into Support Calculations.**

Problems with the new formulas unfortunately do not end with statistical randomness or admitted inaccuracies in data. This subsection highlights eight other examples of critical flaws that introduce additional errors into the benchmarks and resulting support calculations.

First, the formulas continue to assign urban attributes of a census block group to every census block within a group, distorting measurements for rural study areas. While the Bureau dismisses concerns about inaccurate matches between census blocks and study areas based on statewide and national results,<sup>29</sup> this is small comfort – especially to the smallest study areas, whose data are often significantly distorted by such inaccuracies.<sup>30</sup>

Second, the *Order* adopted many new variables without attention to necessary data quality controls. For example, the Bureau chose several independent variables pursuant to methods used in a study produced by the Nebraska Rural Independent Companies (NRIC), while at the same time overlooking the “gate” method of screening data for quality that was an

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<sup>28</sup> As discussed below, *see infra* Sec. V., at 20, the best course for the Commission would be to consider alternative limitation approaches, such as the CapEx limitation methodology that has been part of the record in this proceeding for over one year now.

<sup>29</sup> *See Order* ¶ 74.

<sup>30</sup> *See Rural Associations Comments*, App. D, at 2-6.

essential aspect of the NRIC study.<sup>31</sup> By tossing such variables into the mix without vetting the quality of the data, the new formulas – and the resulting caps – are contaminated and of dubious value, at best, in establishing what qualifies as “efficient” operations or “prudent” investment in any given case.

Third, even without screening, some of the new variables have obvious statistical flaws that appear to have been overlooked. For example, the formulas use total cost as the independent variable, while attempting to draw conclusions about unit cost (e.g., cost per loop). Although cost per loop is known to decrease as loops increase, the coefficient of loops in the formulas is positive, causing them to estimate higher unit cost as loops increase.<sup>32</sup>

Fourth, telltale signs that the formulas fail to measure cost efficiencies correctly can be found in the intuitively incorrect signs of coefficients. For example, coefficients of the “PctUrban” variable are positive in both the CapEx and OpEx regressions,<sup>33</sup> meaning that the formulas paradoxically anticipate higher costs per customer in more urban areas even though cost of service typically declines as an area becomes more urbanized. Similarly, the “PctUndepPlant” variable in the OpEx regression has a positive coefficient,<sup>34</sup> meaning that the formula expects higher operating expenses associated with newer plant even though maintenance costs increase as plant ages.

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<sup>31</sup> *Order* ¶¶ 20-23. The NRIC CapEx Study documented a need to screen out 50% of roadway data to achieve reasonable reliability. The need for such screening would preclude availability of accurate data for most rural study areas. *See* Letter from Thomas Moorman, Counsel to Nebraska Rural Independent Companies, to Marlene H. Dortch, FCC, WC Docket Nos. 10-90, *et al.*, Attach. (Nebraska Rural Independent Companies’ Capital Expenditure Study: Predicting the Cost of Fiber to the Premise) (filed Jan. 7, 2011).

<sup>32</sup> Failure to use Cost per Loop as the dependent variable in the formulas, instead of cost per study area, is a significant contributor to the perverse effects of the formulas on EATEL, described above.

<sup>33</sup> *Order* at 42-44, Tables 2 and 3.

<sup>34</sup> *Id.*

Fifth, the Bureau's age of plant variable measures age of total Telephone Plant in Service, not just the loop portion of plant.<sup>35</sup> This means that carriers "trapped" by this factor are perhaps being punished for the age of switching equipment and special access and transport facilities, which are entirely irrelevant to the HCLS mechanism for which the formula is being developed.

Sixth, additional evidence of formula measurement failure is observed by identifying variables positively correlated with cost in Table 2 of the *Order*, but with coefficients negatively related to cost in Table 3.<sup>36</sup> If an independent variable has a positive correlation with a cost variable, the cost variable is thereby shown to increase as the independent variable increases, and vice versa. A formula that applies a negative coefficient to a positively correlated independent variable turns this relationship on its head, estimating cost decreases precisely when it should be estimating cost increases.<sup>37</sup>

Seventh, the regressions' predictive accuracy is further impaired by persistent use of statistically insignificant variables.<sup>38</sup> The Bureau incorrectly claims in this regard that variables significant in one of the two quantile regression equations have offsetting effects in the other equation, even if they are not significant in the other formula.<sup>39</sup> But proper statistical analysis requires exclusion of an insignificant variable from a model, regardless of its contribution to

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<sup>35</sup> *Id.* ¶ 90.

<sup>36</sup> *Id.* at 42-43, Tables 2 and 3.

<sup>37</sup> For example, Table 2 shows that the correlation between LnRoadMiles and LnCapex is positive (correlation coefficient of 0.59), while Table 3 shows that LnRoadMiles is assigned a negative coefficient (-0.208) in the CapEx regression formula. Since LnRoadMiles is positively correlated with LnCapex (that is, capital expenses tend to increase as the road mileage increases), it is irrational and inexplicable to assign a negative coefficient to this variable in the regression formula, which means that the estimate of 90th percentile cost per loop will be *lower* as road mileage increases.

<sup>38</sup> *Id.* ¶¶ 68-69.

<sup>39</sup> *Id.* ¶ 70.



some other model.<sup>40</sup> For example, instead of rationalizing the lack of significance of the Soils Difficulty variable in the CapEx model,<sup>41</sup> that variable should have been excluded.<sup>42</sup>

Finally, while the *Order* asserts that each company's benchmark is set at the 90<sup>th</sup> percentile of its "similarly situated" group,<sup>43</sup> the actual formulas do not establish *any* comparator groups. Rather, the regression analyses seek to estimate an overall trend line reflecting attributes of 16 independent variables, and then estimate the level above this trend line higher than which 10 percent of all data points could be expected to fall. Instead of evaluating the 90<sup>th</sup> percentile of "look-alikes," the method merely estimates a trendline, using poorly measured independent variables, many of which contribute in illogical directions to the estimates.

In this regard, it bears noting that in the *USF/ICC Transformation Order* the Commission explicitly required that "companies' costs be compared to those of similarly situated companies" . . . and that "statistical techniques should be used to determine which companies shall be similarly situated."<sup>44</sup> In fact, there are no specific "similarly situated" companies involved in this comparison. Not only do capped carriers not have clear "peers" to look to in determining how their operations might become "more efficient" or "more prudent," the caps are inconsistent with Commission expectations.

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<sup>40</sup> *Rural Associations Comments*, App. D, at 5-16. *See also id.* App. E, at 6-7.

<sup>41</sup> *Order* ¶¶ 96-98.

<sup>42</sup> Since the Bedrock variable is also not significant in the CapEx formula, excluding these variables would mean the Bureau has no effective soils-related data for estimating CapEx costs. This is not to say of course that, from a "real world" perspective, soil or bedrock are insignificant in network construction, but they are for some reason insignificant from a statistical perspective in the model constructed here.

<sup>43</sup> *Id.* ¶¶ 32-35.

<sup>44</sup> *USF/ICC Transformation Order* ¶ 217.

### **III. IMPACTS OF THE ADOPTED QUANTILE FORMULAS WILL BE SEVERE FOR MANY COMPANIES, NOTWITHSTANDING THE PHASE-IN OF SUPPORT REDUCTIONS UNDER THE BUREAU'S *ORDER*.**

Analysis of the adopted formulas' impacts shows that many study areas will experience vary large reductions in support under the revised formulas. To begin with, Exhibit 3 (attached) shows that over 100 study areas will experience cost reductions under the formulas, with nearly half of affected study areas experiencing cost reductions exceeding 10 percent. However, attending reductions in HCLS for these study areas are proportionately much larger. Exhibit 4 shows that most affected study areas will experience reductions per subscriber exceeding \$10, with 44 losing more than \$100 per subscriber per year. These are enormous reductions to impose on carriers without first determining that the excluded costs are not necessary to provide quality service, and particularly given that the caps are based on admittedly unreliable data and flawed formulas that generate random results.

Furthermore, carriers had no way to anticipate the profound magnitude of changes between the initial and final versions of the caps. To be sure, some companies will prefer the final formulas to those proposed in the *USF/ICC Transformation Order*. For example, as shown in Exhibit 5 (attached) final caps for 20 study areas are between 20 percent and 48.5 percent higher than the originals. On the other hand, caps for a significant number of companies will be as much as 39.5 percent lower than initially anticipated, reducing expected support payments by as much as 65 percent by 2014.

Considered on a per-loop basis, the variation between the initially proposed caps and the adopted caps is even more alarming. Exhibit 6 shows that cost per loop cap values under the *Order* increase from \$100 to as high as \$5832 compared to the November results. Conversely, other carriers will now see per-loop cost reductions of as much as \$515 pursuant to the new caps.

The fact that support reductions under the *Order* are “phased in” over the next 18 months does not significantly ameliorate these concerns. For some companies, the speed and enormity of such phased-in adjustments remain almost beyond comprehension. Exhibit 7 (attached) shows that, beginning in July 2012 and even with the “ten percent” backstop, some carriers will have a reduction of up to \$534 per customer in supportable expenses, meaning that affected carriers would need to find ways to substantially curtail expenses and/or increase customer rates starting just over one month from now. The last two columns of Exhibit 7 show that carriers would need to double these efforts six months later, in January 2013, and double them again in January 2014. These are not changes that could reasonably be absorbed by any carrier or customer in such a short time frame.<sup>45</sup>

#### **IV. THE CAPS WILL FAIL TO PROVIDE INCENTIVES FOR “EFFICIENT” OPERATIONS AND “PRUDENT” INVESTMENT BECAUSE THEY ARE UNPREDICTABLE, IMPENETRABLE, AND IMPRECISE.**

Section 254(b)(5) of the Act calls for “specific, predictable and sufficient Federal and State mechanisms to preserve and advance universal service.”<sup>46</sup> To be predictable, “[t]he methodology governing subsidy disbursements [must be] plainly stated and made available to LECs.”<sup>47</sup>

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<sup>45</sup> As a notable contrast, the Commission has been extremely careful in other contexts to limit the impacts of rate transitions on consumers to very small annual increments. For example, the *USF/ICC Transformation Order* limits increases in monthly residential Access Recovery Charge (ARC) rates to \$0.50 per year, up to a maximum local rate level of \$30. *Id.* ¶¶ 908-913. Similarly, the transition for end user common line charges adopted in 1984 limited rate increases to \$1.25 per month, or \$15 per year, far less than the rate increases the Bureau apparently contemplates for some RLEC customers affected by the benchmarks. *See MTS and WATS Market Structure*, CC Docket No. 78-72, Phase I, Third Report and Order, 93 FCC 2d 241 (1983); Memorandum Opinion and Order, 97 FCC 2d 682 (1983); Memorandum Opinion and Order, 97 FCC 2d 834 (1984).

<sup>46</sup> 47 U.S.C. § 254(b)(5).

<sup>47</sup> *Alenco Comms., Inc., v. FCC*, 201 F.3d 608, 622 (5<sup>th</sup> Cir. 2000).

The caps adopted by the Bureau may be many things, but as the discussion above confirms, “plainly stated” and accessible or “available” they are not. As noted above, the Commission’s express purpose in adopting the caps was to “create structural incentives for rate-of-return companies to operate more efficiently and make prudent expenditures.”<sup>48</sup> Setting aside the concern that there has never been a specific finding in this record that prior investments or operations were either inefficient or imprudent, this statement presumes that the regression-based caps will at least give carriers appropriate signals about what is now deemed “efficient” and “prudent.”

As letters filed in the wake of the *Order* attest,<sup>49</sup> carriers cannot discern precisely why they have been captured by the caps, or what they should do to alter investment or operating practices to become allegedly “more efficient.” If carriers cannot tell what triggers the caps in the first instance, it is impossible to see how this system encourages “corrective” behavior.<sup>50</sup>

Of perhaps even greater concern, the fact that the caps will change each year due to factors beyond any individual carrier’s control further undermines any effort to encourage efficiency and prudence. For example, assume that a carrier faces an operating expense cap of \$100 for 2012, happens to make an accurate guess at why it faces such a cap, and takes

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<sup>48</sup> *USF/ICC Transformation Order* ¶ 210.

<sup>49</sup> *EATEL Letter*, *supra* note 15. See also Letter from Greg Berberich, Chief Executive Officer, Matanuska Telephone Association, to Sharon Gillett, Chief, WCB, FCC, WC Docket No. 10-90, *et al.* (filed May 10, 2012); Letter from Rhonda S. Goddard, COO Regulated Services, Rural Telephone Service Co., to Sharon Gillett, Chief, WCB, FCC, WC Docket No. 10-90, *et al.* (filed May 8, 2012).

<sup>50</sup> It is true that a carrier might have a general understanding that either its operating or capital costs (or both) are allegedly “too high” as compared to the caps. But aimless cost-cutting in an attempt to fall below the caps, without more precise and transparent guidance as to *why* and *how* a carrier might have triggered them in the first place (and whether the cutting of those costs will in fact achieve “success” with respect to bringing a given carrier below the caps), surely is not what the Commission envisions with respect to greater “efficiency” and “prudence.” Yet this is what the caps as presently structured will encourage in the absence of greater transparency.

“prudent” steps to adjust its operations in an attempt to be more “efficient” going forward. Because the caps are revised each year, that carrier could find itself on the wrong side of the operating expense cap again because of actions (or inactions) on the part of other companies during the relevant time period as well as the potential for unknown and unpredictable methodology changes by Bureau staff when they update the regression formulas.<sup>51</sup>

This situation is exacerbated because the caps are based upon two-year-old data.<sup>52</sup> This means that any rewards resulting from more “efficient” and “prudent” behavior in 2012 would not even begin to be realized until 2014 – at which point, the caps will have changed twice more, and the efforts in question may no longer be relevant given that the entire regression formulas will be updated for 2014.<sup>53</sup>

Thus, the caps adopted in the *Order* are both impenetrable and imprecise – a constantly moving target hidden behind a dark curtain (or at least a thick veil). Rather than creating clear business rules for efficient operations or prudent investment, the caps are far more likely to foster

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<sup>51</sup> Of course, as noted above, there is in fact no “similarly situated” peer group to which a carrier can look for its benchmarks. This means that, even if an affected carrier somehow had the capacity to monitor its peers and adjust its operating and investment practices accordingly, it cannot do so because such a peer group does not in fact exist.

<sup>52</sup> Under the Commission’s Part 36 rules, the HCLS an RLEC receives in a given calendar year relates to loop costs incurred two years prior. For example, support for calendar year 2012 is based on investment and expense data for calendar year 2010 data. *See* 47 C.F.R. § 36.611.

<sup>53</sup> This is why the 18-month transition adopted by the Bureau is wholly inadequate. Any “course correction” in conduct with respect to the caps that will take effect January 1, 2014 would have needed to occur in 2011 and 2012. This means that the vast majority of the costs to which the caps will apply as of that “transition” date were incurred well before the caps were developed. Support for calendar year 2014 will reflect data from calendar year 2012. Since the Bureau Order implementing the caps was adopted in April 2012, any efforts made by companies to conform operations to the Bureau’s benchmarks will only be partly reflected in their 2014 payments. The earliest year in which support payments will fully reflect the impact of any operational changes made by carriers after adoption of the caps will be 2015, by which point the caps will have changed at least three times.

paralysis as carriers reduce operations and delay or forego network investments in a guessing game as to what the caps might look like several years in the future.

The Bureau asserts that the caps will help to offset unpredictability resident within the existing HCLS mechanism.<sup>54</sup> As a matter of law and policy, the remedy for perceived unpredictability in USF support should not be to inject more unpredictability in the hope that they might cancel each other out. Not only is there no evidentiary basis for this theory, but the legal foundation for such an effort – an effective “doubling-down” on unpredictability – is questionable at best. As a practical matter, the utter randomness and clear flaws resident within the new caps undermine any hope that this theory might have worked in any event.<sup>55</sup>

To assess the claim that existing HCLS support is subject to unpredictable changes such that these caps are needed as a “fix,” the Rural Associations estimated year-to-year changes in the National Average Cost Per Loop (NACPL) under current rules and evaluated how well predictions of those changes compared with actual results. The results of those tests are presented in Exhibit 8. This Exhibit shows that under current rules, carriers have been able to predict changes in the NACPL with a fairly high degree of accuracy. Indeed, over the past five

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<sup>54</sup> *E.g., Order* ¶ 41.

<sup>55</sup> This stands in stark contrast to the careful way that the Commission previously addressed concerns about the effect of the indexed cap on HCLS predictability: “We agree with the Rural Task Force that ‘safety net additive’ support and support for acquired exchanges and ‘safety valve’ support should be excluded from the re-based cap on high-cost loop support. . . . By providing carriers above-the-cap support for new investments in their existing networks and acquired exchanges, *we introduce an element of predictability that has not been present under the current high-cost universal service mechanism.*” *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, *Multi-Association Group (MAG) Plan for Regulation of Interstate Services of Non-Price Cap Incumbent Local Exchange Carriers and Interexchange Carriers*, CC Docket No. 00-256, Fourteenth Report and Order, Twenty-Second Order on Reconsideration, and Further Notice of Proposed Rulemaking in CC Docket No. 96-45, and Report and Order in CC Docket No. 00-256, 16 FCC Rcd. 11244 (2001) ¶ 38 (emphasis added).

years the amount by which the NACPL has differed from predictions has ranged from no more than \$10 to as little as \$0.06, a very small error.

Using a similar test to attempt to predict year-to-year changes in the regression-based benchmarks reveals dramatic differences. As described in Exhibit 8, the range of unpredictability based on the new rules extends over \$1000 per loop, with many companies spread out across this range. This directly contradicts claims that “support will now be more predictable” under the caps.<sup>56</sup>

It is simply impossible to square these imprecise and impenetrable caps – which will cause carriers to cut staff jobs, cut back on service delivery, and cut back on broadband investment – with claims that the *USF/ICC Transformation Order* “has the potential to be one of the biggest job creators in rural America in decades” or that “the Order as a whole will unleash billions in private sector broadband infrastructure spending in rural America over the next decade, creating hundreds of thousands of jobs.”<sup>57</sup> Constraints cannot and will not succeed in encouraging “efficient” operations or “prudent” broadband investment unless and until there are transparent business rules in place and some reasonable opportunity to comply with them in advance over the life of network investments and related operations. Put most simply, carriers cannot develop well-informed business plans and budgets under these unpredictable caps.

Failure to remedy this fundamental concern will run afoul of the statutory principles of

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<sup>56</sup> E.g., *Order* ¶ 41.

<sup>57</sup> *USF/ICC Transformation Order*, Statement of Chairman Genachowski, at 3. The Chairman has spoken in other contexts about the need for “predictable rules of the road” to avoid depriving “innovators and investors of confidence” in a particular regulatory regime. *Preserving a Free and Open Internet: A Platform for Innovation, Opportunity, and Prosperity*, Prepared Remarks of Chairman Genachowski, The Brookings Institution, at 4 (Sept. 21, 2009). Presumably, the same should hold true for operators making long-term investment decisions in network assets and the lenders who provide access to capital in support of such investments. See also Prepared Remarks of Chairman Genachowski, GSMA Mobile World Congress, at 4 (Feb. 27, 2012) (“In our work, we’ve recognized that regulatory certainty and predictability promotes investment.”).

predictability and sufficiency, and render the Commission’s Connect America Fund reforms an abject failure in RLEC-served rural areas from both an economic development perspective and a broadband deployment perspective.<sup>58</sup>

## **V. THE BUREAU HAS EXCEEDED ITS DELEGATED AUTHORITY.**

The *USF/ICC Transformation Order* directed the Bureau “to implement a methodology” for regression analysis-based caps to limit recovery of costs through HCLS.<sup>59</sup> This approach gave rise to concerns that the Commission’s decision was premature, given that the exact methodology for imposing such caps had yet to be determined.<sup>60</sup>

It is now clear these concerns were understated. Although the Bureau’s task was to start from the proposal in Appendix H of the *USF/ICC Transformation Order* and implement caps for HCLS cost recovery based upon that methodology, the formulas and caps prescribed under the Bureau’s *Order* differ dramatically from those initially proposed by the Commission and will vary dramatically from year-to-year.<sup>61</sup> There is simply no telling what changes in methods or

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<sup>58</sup> The market is already expressing this view: CoBank, for example, writes that it “agree[s] with the growing chorus of industry trade groups in calling for the Commission to reconsider this approach in determining high-cost loop support. . . . For those communications companies serving rural high-cost areas, deploying affordable broadband is not economically possible without a sufficient, sustainable, and predictable cost recovery mechanism.” Letter from Robert F. West, CoBank, to Marlene H. Dortch, FCC, WC Docket No. 10-90, *et al.*, at 1 (filed May 8, 2012).

<sup>59</sup> *USF/ICC Transformation Order* ¶ 210.

<sup>60</sup> See *Rural Associations Petition for Reconsideration* at 9. The Associations also warned the Commission that this approach raised significant legal issues under the Administrative Procedure Act. *Id.* at n. 22, *citing* Letter from Michael R. Romano, NTCA, to Marlene H. Dortch, FCC, WC Docket No. 10-90, *et al.*, at 2 (filed Oct. 21, 2011).

<sup>61</sup> As noted above, in developing the formulas the Bureau failed to comply with the Commission’s directive that statistical techniques should be used to determine “similarly situated” companies. See *supra* at 14. See also *USF/ICC Transformation Order* ¶¶ 217-223; App. H ¶¶ 1-4.



data the Bureau might elect to make in 2014, when it undertakes to rerun the models. This injects an unprecedented degree of uncertainty into the support process.<sup>62</sup>

Even if the Commission intended to grant the Bureau such wide latitude in adjusting support payments annually, the *USF/ICC Transformation Order* certainly did not delegate to the Bureau the discretion to make *policy* determinations with respect to application of the caps or their legal or statutory underpinnings (or lack thereof). Yet the Bureau took it upon itself to do just this, purporting to explain why the caps comport with underlying statutory principles of universal service and other provisions of applicable law.<sup>63</sup> But these exact issues remain pending resolution either in the context of petitions for reconsideration before the full Commission<sup>64</sup> or in petitions seeking court review of the *USF/ICC Transformation Order*.<sup>65</sup> The Bureau had neither the need nor the charge to address such questions in its *Order*.

The Commission should accordingly rule that the Bureau's comments with respect to such matters are not dispositive. Moreover, it should consider *de novo* (and rule favorably upon) the pending petition for reconsideration filed by NECA, OPASTCO, and WTA and this Application for Review with respect in particular to the lack of predictability and sufficiency of support produced by the formulas adopted in the *Order*.

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<sup>62</sup> Section 0.91(p) of the Commission's rules, 47 C.F.R. § 0.91(p), grants the Bureau only limited authority over USF matters. For example, the Bureau is authorized to act as an advisor to the Commission with respect to potential changes or adjustments to USF policy and practices and to conduct certain ministerial functions. Changing USF allocation formulae from year-to-year is well beyond the scope of any previous delegation of authority to the Bureau.

<sup>63</sup> See *Order* ¶¶ 37-42.

<sup>64</sup> E.g., *Rural Associations Petition for Reconsideration* at 6-13 (raising concerns with respect to the sufficiency of the universal service reforms and the predictability of the capping mechanism).

<sup>65</sup> E.g., *NTCA v. FCC, et al.*, No. 11-9589, Docketing Statement of NTCA (10<sup>th</sup> Cir., filed Jan. 12, 2012), at Attach. B (challenging "the imposition of new constraints on the availability of USF support with respect to investments made prior to the effective date of the Order").

## **VI. THE CAPS SHOULD NOT TAKE EFFECT UNTIL THE COMMISSION CONSIDERS REASONABLE ALTERNATIVES.**

For all the reasons discussed above, allowing the caps announced in the *Order* to take effect would constitute serious substantive and procedural error. The Commission must first conclude, based upon sound evidence, careful policy evaluation, and valid statistical analysis, that any such caps will in fact accomplish the objective of identifying and excluding imprudent investment or inefficient spending. The Commission must also find a way to correct admitted errors in the underlying data *before* it allows formulas incorporating such erroneous data to affect support payments to companies, even on a “transitional” basis. The Commission should also address the critical relationship between capital expenditures and operating expenses, an effect that remains masked under the Bureau’s two-formula approach.<sup>66</sup> Perhaps most importantly, the Commission must find ways to reduce the volatility of any support limitation formulas and ensure that support payments remain sufficient and predictable, as required under section 254 of the Act, particularly in light of the long time horizon involved in telecommunications plant investments.

To accomplish these tasks the Commission must suspend implementation of its quantile regression-based caps for July 1, 2012, and consider alternative proposals for support limitation methods. Workable alternatives already discussed in this proceeding could significantly improve the Commission’s ability to develop rational and transparent “benchmarking” methods that

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<sup>66</sup> As discussed above, the Bureau recognized the business decision “tradeoffs” involved in building and operating advanced telecommunications networks by reducing the number of regressions from 11 to two. But this does not address what is almost certainly the greatest tradeoff of all in providing telecommunications services – the fundamental balancing between CapEx and OpEx involved in deciding when to upgrade or build a network rather than maintain or lease a network. A company that is highly efficient in using existing plant could as a result be viewed as having “excessive” OpEx. Conversely, a company that efficiently minimizes maintenance needs by investing in new equipment at the appropriate time could be perceived as having “excessive” CapEx.

provide stable, long-term guidance to companies as to what expenditures will or will not trigger support reductions.

In particular, the Commission should give careful and detailed consideration to the specific proposal for limiting capital expenditures submitted by the Rural Associations over one year ago in this proceeding.<sup>67</sup> The RLEC CapEx proposal, developed by Vantage Point Solutions, takes into account the accumulated depreciation in each carrier's existing loop plant, and is designed to ensure that carriers with plant most in need of upgrading have the ability to do so, while reasonably constraining replacements of more recently-installed equipment. This targeted prospective constraint would avoid the inaccuracies and unpredictability of the current regression formulas.

In contrast to the convoluted formulas hidden beneath the caps, the RLECs' proposed CapEx mechanism provides transparent "business rules," allowing RLEC management (and the Commission itself) to identify allowable levels of expenditures *in advance* of making capital investment decisions. This would provide a higher degree of certainty as to whether costs incurred in providing universal service will either be recoverable, or if construction is undertaken at the carrier's own risk.<sup>68</sup>

## VII. CONCLUSION

For all the above reasons, the Commission should set aside the *Order* and suspend implementation of HCLS support limitations based on the quantile regression formulas. The

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<sup>67</sup> See Comments of NECA, NTCA, OPASTCO, and WTA, WC Docket No. 10-90, *et al.*, App. A (filed Apr. 18, 2011).

<sup>68</sup> It is also important to note that, while the Rural Associations continue to support adoption of the RLEC Plan in total, the proposed CapEx mechanism can operate with existing support mechanisms independently.

Commission should instead review the logical basis for any such limitation mechanism, ensure that its underlying data is accurate, and consider alternative methods that will ensure support remains predicable and sufficient, as required by section 254 of the Act.

Respectfully submitted,

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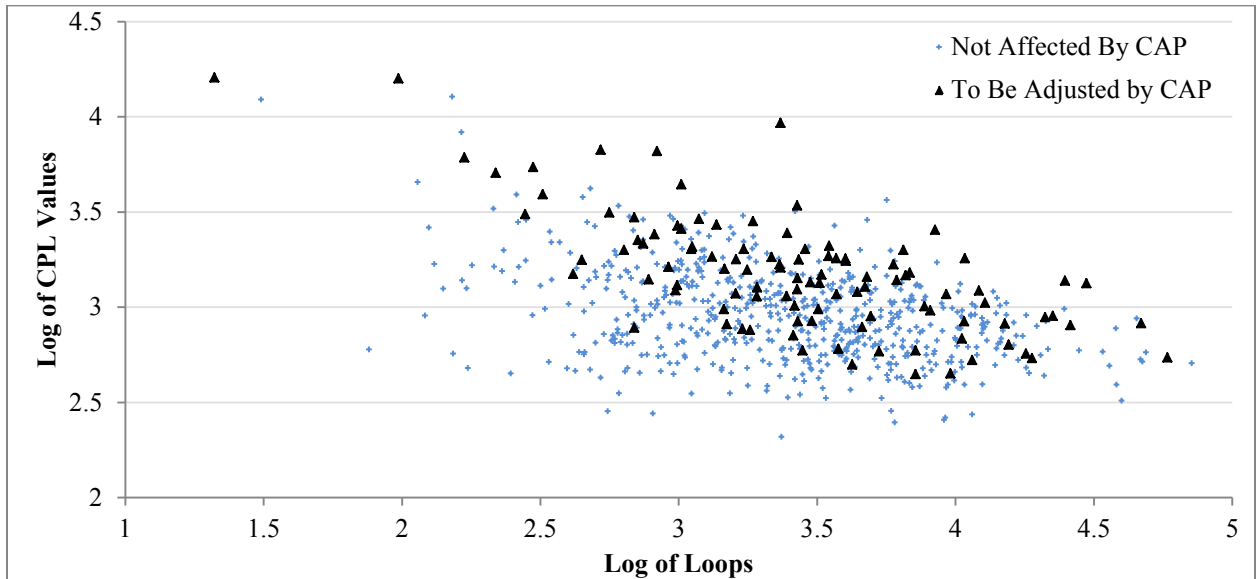
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May 25, 2012

Exhibit 1  
Actual Cost per Loop Data Affected by the Commission's Benchmarks



This exhibit shows cost per loop data before applying benchmarks, with bold markers identifying study areas affected by the benchmarks.

Exhibit 2  
Effects of Data Correction on CAPEX Model Coefficients

Variable	FCC Order Table 3	Revised for Data Correction	% Change
Loops	0.76082	0.78783	-3.4%
Road Miles	-0.14821	-0.20798	-28.7%
Road Crossings	0.21196	0.24044	-11.8%
Count of States	-0.06813	-0.07015	-2.9%
Per Cent Undepreciated Plant	0.03048	0.03069	-0.7%
Density	-0.12701	-0.15783	-19.5%
Exchange Count	0.11668	0.11775	-0.9%
Per Cent Bedrock	-0.08785	-0.07241	21.3%
Soils Difficulty	0.11457	0.11838	-3.2%
Climate	0.09502	0.08864	7.2%
Per Cent Tribal Land	0.00029	0.00048	-39.6%
Per Cent Park Land	0.01702	0.01759	-3.2%
Per Cent Urban	0.00046	0.00058	-20.7%
Alaska	-0.48971	-0.62233	-21.3%
Midwest	0.09783	0.09175	6.6%
Northeast	-0.30917	-0.30902	0.0%
Intercept	6.00019	6.03898	-0.6%

This exhibit shows the effect on coefficients of the CAPEX benchmark model when data of a single study area is corrected.

Exhibit 3  
Effect of Quantile Model Benchmarks on Support  
By Percentage Impact

Percent Impact on CPL	Counts of Study Areas	% Impact on HCL Support Payments
No Impact	621	0.0%
< -10%	59	-10.2%
-10% to -20%	31	-27.2%
-20% to -30%	8	-35.0%
-30% to -40%	5	-46.4%
-40% to -50%	2	-76.6%
All Study Areas	726	-8.7%

This exhibit shows the percentage reduction in support payments of companies who are not affected by benchmarks (first row), and those who are affected on other rows.

Exhibit 4  
Effect of Quantile Model Benchmarks on Support  
By Cost per Loop Impact

Support Difference Per Loop	Counts of Study Areas	% Impact on HCL Support Payments
No Impact	628	0.0%
Less than -\$10	13	-1.8%
-\$10 to -\$20	4	-26.4%
-\$20 to -\$30	5	-10.7%
-\$30 to -\$50	10	-11.7%
-\$50 to -\$100	22	-20.6%
-\$100 to -\$200	20	-24.3%
-\$200 to -\$500	12	-48.1%
-\$500 to -\$1000	6	-39.7%
-\$1000 to -\$2767	6	-36.7%
All Study Areas	726	-8.7%

This exhibit shows the annual reduction in support payment per customer of companies who are not affected by benchmarks (first row), and those who are affected on other rows.



## Exhibit 5

### Comparison of Preliminary and Final Benchmark Models Payment Impacts by Cost per Loop Percentage Impact

Cost per Loop Impact	Study Areas	Support Payment Impact
20% to 48.5%	20	37.3%
10% to 20%	47	24.5%
5% to 10%	45	17.9%
0% to 5%	167	4.6%
No Impact	384	0.0%
-5% to 0%	30	-7.5%
-10% to -5%	14	-12.4%
-20% to -10%	9	-33.8%
-39.5% to -20%	4	-65.8%

Study areas are grouped by range of cost per loop impact of the benchmark models, showing effects on support payments by group.

## Exhibit 6

### Comparison of Preliminary and Final Benchmark Models Payment Impacts by Cost per Loop Percentage Impact

Support per Loop Impact	Study Areas	Support Payment Impact
\$3000 to \$5832	4	39.4%
\$1000 to \$3000	3	43.7%
\$500 to \$1000	9	26.8%
\$200 to \$500	20	25.7%
\$100 to \$200	33	22.3%
\$0 to \$100	196	9.3%
No Impact	406	0.0%
-\$50 to \$0	24	-8.8%
-\$100 to -\$50	12	-16.0%
-\$500 to -\$100	12	-40.8%
-\$515 to -\$500	1	-14.2%

Study areas are grouped by range of cost per loop impact differences between the preliminary and final benchmark models, showing effects on support payments by group.

Exhibit 7  
Implementation Steps for CAPEX and OPEX Benchmarks

Final Impacts per Loop	Study Areas	Per Loop Annual Impacts vs No Benchmark		
		July 2012	January 2013	January 2014
\$0	627	0.00	0.00	0.00
\$0 to \$10	14	1.19	2.76	5.53
\$10 to \$25	5	3.45	7.45	14.91
\$25 to \$50	14	7.68	16.23	32.46
\$50 to \$100	22	16.98	36.45	72.90
\$100 to \$250	25	33.78	72.78	145.57
\$250 to \$500	7	61.18	204.51	409.03
\$500 to \$1000	6	144.83	338.55	677.09
Over \$1000	6	534.05	1080.00	2160.00

This shows per-customer hits during the eighteen month implementation period. Study areas are grouped by final per-loop impact. July 2012 applies the 10% limit, and the 25% transition step. January 2013 applies the 50% transition step, which reaches 100% in January 2014.

Exhibit 8  
Predictability of Annual HCLS Support per Loop

Prediction Miss	Current Fund	Quantile Fund
Greater than -\$500	0	3
-\$500 to -\$100	0	9
-\$100 to -\$75	0	4
-\$75 to -\$50	0	5
-\$50 to -\$40	0	3
-\$40 to -\$30	0	4
-\$30 to -\$20	0	7
-\$20 to -\$10	0	4
-\$10 to -\$5	0	8
-\$5 to -\$2	0	5
-\$2 to -\$1	571	1
-\$1 to \$0	2	81
\$0	147	441
\$0 to \$1	0	89
\$1 to \$2	0	2
\$2 to \$5	0	4
\$5 to \$10	0	4
\$10 to \$20	0	9
\$20 to \$30	0	4
\$30 to \$40	0	4
\$40 to \$50	0	5
\$50 to \$75	0	6
\$75 to \$100	0	5
\$100 to \$500	0	14
Over \$500	0	1

Predictions under Current Fund rely on current NACPL plus NACPL growth since last year, to predict next year's NACPL and payments. Predictions under Quantile Fund use each study area's per loop impact of quantile models derived from HCLS data filed in 2011, to predict quantile model adjustments to its HCLS data filed in 2012.

## CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of the foregoing Application for Review and Petition for Stay were sent by first-class mail this 25th day of May, 2012, to each of the following:

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